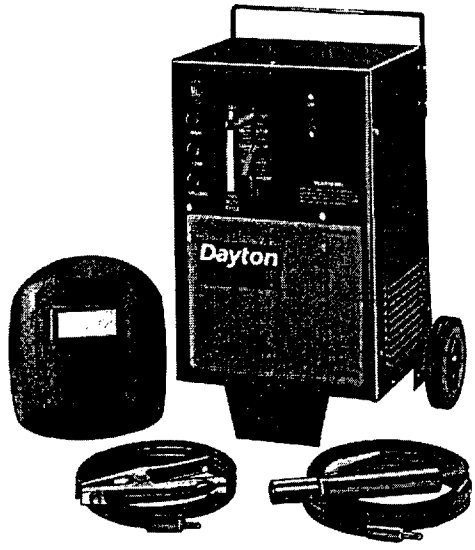
Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton® Arc Welder

Description

Dayton arc welder is designed for use in industrial plants, metal fabrication shops and automotive repair shops. The welder is equipped with a welding cable, grounding cable, ground clamp, electrode holder and welding helmet. The welder has a forced-draft cooling system for component protection.



Wheel Kit optional on all models.

Power cord optional on Model 3Z564A

Model 3Z561C

Every craftsman respects the tools with which they work. They know that the tools represent years of constantly improved designs and developments. The true craftsman also knows that tools are dangerous if misused or abused.

General Safety Information

Reading this operators manual before using the welder will enable you to do a better, safer job. Learn the welder's applications and limitations as well as the specific potential hazards peculiar to welding.

READ ALL SAFETY INSTRUCTIONS CAREFULLY before attempting to install, operate, or service this welder. Failure to comply with these instructions could result In personal injury and/or property damage.

RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

NOTE: The following safety alert symbols identify important safety messages in this manual.

When you see one of the symbols shown here, be alert to the possibility of personal

Specifications	3Z561C	3Z563B	3Z564A	3Z744B
AC Welding Current: High	60–230	60–230	30–250	25–100
AC Welding Current: Low	Min–180	Min–180	Not Applicable	Not Applicable
DC Welding Current	Not Applicable	20–140	30–250	Not Applicable
Maximum Open Circuit	72 Volts	72 Volts	78 Volts	40 Volts
Primary Input	48 Amps @ 230V	48 Amps @ 230V	76 Amps @ 230V 80 Amps @ 208V	26.6 Amps @ 115V
Duty Cycle at Rated Output	20%	20%	20%	20%
Overall Dimensions: Height, Width, Depth	22.13"H x 14.81"W x 22.13"D	22.13"H x 14.81"W x 22.13"D	22.13"H x 14.81"W x 22.13"D	15.25"H x 10.0"W x 9.5"D
Approximate Weight, Net: Approximate Weight, Shipping:	80 lbs. 78.2 lbs.	101 lbs. 112.5 lbs	134 lbs. 143 lbs.	45 lbs. 47 lbs.

Form 5S2303

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Dayton® Arc Welder

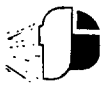
ENGLISH

General Safety Information (Continued)

injury and carefully read the message that follows.

This symbol indicates that the possibility of electric shock hazard exists during the operation of the step(s) that follow.

This symbol indicates that the possibility of fire hazard exists during the operation of the step(s) that follow.


This symbol indicates that the helmet must be worn during the step(s) that follow to protect against eye damage and burns due to flash hazard.

This symbol indicates that the possibility of toxic gas hazard exists during operation of the step(s) that follow.

This symbol indicates that the possibility of being burned by hot slag exists during operation of the step(s) that follow.

This symbol indicates that the eye protection should be worn to protect against flying debris in the following step(s).

Published standards on safety are available. They are listed in ADDITIONAL SAFETY INFORMATION at the end of this SAFETY SUMMARY.

The United States National Electrical Code, Occupational Safety and Health Act regulations, local industrial codes and local inspection requirements also provide a basis for equipment installation, use, and service.

SHOCK HAZARDS

⚠ WARNING

Electric shock can kill! To reduce the risk of death or serious injury from shock, read, understand, and follow the following safety instructions. In addition, make certain that anyone else who uses this welding equipment, or who is a bystander in the welding area understands and follows these safety instructions as well.

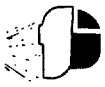
IMPORTANT: TO REDUCE THE RISK OF DEATH, INJURY, OR PROPERTY DAMAGE. DO NOT ATTEMPT OPERATION of this welding equipment until you have read and understand the following safety summary.

- Do not, in any manner, come into physical contact with any part of the welding current circuit. The welding current circuit includes:
  a. the work piece or any conductive material in contact with it,
  b. the ground clamp,
  c. the electrode or welding rod,
  d. any metal parts on the electrode holder.
- Do not weld in a damp area or come in contact with a moist or wet surface.
- Do not attempt to weld if any part of clothing or body is wet.
- Do not allow the welding equipment to come in contact with water or moisture.
- Do not drag welding cables or welder power cord through or allow them to come into contact with water or moisture.
- Do not touch welder, attempt to turn welder on or off if any part of the body or clothing is moist or if you are in physical contact with water or moisture.
- Do not attempt to plug the welder into the power source if any part of body or clothing is moist, or if you are in physical contact with water or moisture.
- Do not connect welder ground clamp to or weld on electrical conduit.
- Do not alter power cord or power cord plug in any way.
- Do not attempt to plug the welder into the power source if the ground prong on power cord plug is bent over, broken off, or missing.
- Do not allow the welder to be connected to the power source or attempt to weld if the welder, welding cables, welding site, or welder power cord are exposed to any form of atmospheric precipitation, or salt water spray.
- Do not carry coiled welding cables around shoulders, or any other part of the body, when they are plugged into the welder.
- Do not modify any wiring, ground connections, switches, or fuses in this welding equipment.
- Wear welding gloves to help insulate hands from welding circuit.
- Keep all liquid containers far enough away from the welder and work area so that if spilled, the liquid can not possibly come in contact with any part of the welder or electrical welding circuit.
- Replace any cracked or damaged parts that are insulated or act as insulators such as welding cables, power cord, or electrode holder IMMEDIATELY.

Models 3Z561C, 3Z563B, 3Z564A and 3Z744B

General Safety Information (Continued)

FLASH HAZARDS



⚠ WARNING

ARC RAYS CAN INJURE EYES AND BURN SKIN! To reduce risk of injury from arc rays, read, understand, and follow the following safety instructions. In addition, make certain that anyone else that uses this welding equipment, or is a bystander in the welding area, understands and follows these safety instructions as well.

- Do not look at an electric arc without proper protection. A welding arc is extremely bright and intense and, with inadequate or no eye protection, the retina can be burned, leaving a permanent dark spot in the field of vision. A shield or helmet with a number 10 shade filter lens (minimum) must be used.
- Do not strike a welding arc until all bystanders and you (the welder) have welding shields and/or helmets in place.
- Do not wear a cracked or broken helmet and replace any cracked or broken filter lenses IMMEDIATELY.
- Do not allow the uninsulated portion of the electrode holder to touch the ground clamp or grounded work to prevent an arc flash from being created on contact.
- Provide bystanders with shields or helmets fitted with a #10 shade filter lens.
- Wear protective clothing. The intense light of the welding arc can burn the skin in much the same way as the sun, even through light-weight clothing. Wear dark clothing of heavy material. The shirt worn should be long sleeved and the collar kept buttoned to protect chest and neck.
- Protect against REFLECTED ARC RAYS. Arc rays can be reflected off shiny surfaces such as a glossy painted surface, aluminum, stainless steel, and glass. It is possible for your eyes to be injured by reflected arc rays even when wearing a protective helmet or shield. If welding with a reflective surface behind you, arc rays can bounce off the surface, then off the filter lens on the inside of your helmet or shield, then into your eyes. If a reflective background exists in your welding area, either remove it or cover it with something non-flammable and non-reflective. Reflected arc rays can also cause skin burn in addition to eye injury.

FIRE HAZARDS

⚠ WARNING

FIRE OR EXPLOSION CAN CAUSE DEATH, INJURY, AND PROPERTY DAMAGE!

To reduce risk of death, injury, or property damage from fire or explosion, read, understand, and follow the following safety instructions. In addition, make certain that anyone else that uses this welding equipment, or is a bystander in the welding area, understands and follows these safety instructions as well. REMEMBER! Arc welding by nature produces sparks, hot spatter, molten metal drops, hot slag, and hot metal parts that can start fires, burn skin, and damage eyes.

- Do not wear gloves or other clothing that contain oil, grease, or other flammable substances.
- Do not wear flammable hair preparations.
- Do not weld in an area until it is checked and cleared of combustible and/or flammable materials. BE AWARE that sparks and slag can fly 35 feet and can pass through small cracks and openings. If work and combustibles cannot be separated by a minimum of 35 feet, protect against ignition with suitable, snug-fitting, fire resistant, covers or shields.
- Do not weld on walls until checking for and removing combustibles touching the other side of the walls.
- Do not weld, cut, or perform other such work on used barrels, drums, tanks, or other containers that had contained a flammable or toxic substance. The techniques for removing flammable substances and vapors, to make a used container safe for welding or cutting, are quite complex and require special education and training.
- Do not strike an arc on a compressed gas or air cylinder or other pressure vessel. Doing so will create a brittle area that can result in a violent rupture immediately or at a later time as a result of rough handling.
- Do not weld or cut in an area where the air may contain flammable dust (such as grain dust), gas, or liquid vapors (such as gasoline).
- Do not handle hot metal, such as the workpiece or electrode stubs, with bare hands.
- Wear leather gloves, heavy long sleeve shirt, cuffless trousers, high-topped shoes, helmet, and cap. As necessary, use additional protective clothing such as leather jacket or sleeves, fire resistant leggings, or apron. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned and pockets eliminated from the shirt front.

Dayton® Arc Welder

ENGLISH

General Safety Information (Continued)

- Have fire extinguishing equipment handy for immediate use! A portable chemical fire extinguisher, type ABC, is recommended.
- Wear ear plugs when welding overhead to prevent spatter or slag from falling into ear.
- Make sure welding area has a good, solid, safe floor, preferably concrete or masonry, not tiled, carpeted, or made of any other flammable material.
- Protect flammable walls, ceilings, and floors with heat resistant covers or shields.
- Check welding area to make sure it is free of sparks, glowing metal or slag, and flames before leaving the welding area.

FUME HAZARDS

⚠ WARNING

FUMES, GASSES, AND VAPORS CAN CAUSE DISCOMFORT, ILLNESS, AND DEATH! To reduce risk of discomfort, illness, or death, read, understand, and follow the following safety instructions. In addition, make certain that anyone else that uses this welding equipment or is a bystander in the welding area, understands and follows these safety instructions as well.

- Do not weld in an area until it is checked for adequate ventilation as described in ANSI standard #Z49.1. If ventilation is not adequate to exchange all fumes and gasses generated during the welding process with fresh air, do not weld unless you (the welder) and all bystanders are wearing air-supplied respirators.
- Do not heat metals coated with, or that contain, materials that produce toxic fumes (such as galvanized steel), unless the coating is removed. Make certain the area is well ventilated, and the operator and all bystanders are wearing air-supplied respirators.
- Do not weld, cut, or heat lead, zinc, cadmium, mercury, beryllium, or similar metals without seeking professional advice and inspection of the ventilation of the welding area. These metals produce EXTREMELY TOXIC fumes which can cause discomfort, illness, and death.
- Do not weld or cut in areas that are near chlorinated solvents. Vapors from chlorinated hydrocarbons, such as trichloroethylene and perchloroethylene, can be decomposed by the heat of an electric arc or its ultraviolet radiation. These actions can cause PHOSGENE, a HIGHLY TOXIC gas to form, along with other lung and eye-irritating gasses. Do not weld or cut where these solvent vapors can be drawn into the work area or where the ultraviolet radiation can penetrate to areas containing even very small amounts of these vapors.
- Do not weld in a confined area unless it is being ventilated or the operator (and anyone else in the area) is wearing an air-supplied respirator.
- Stop welding if you develop momentary eye, nose, or throat irritation as this indicates inadequate ventilation. Stop work and take necessary steps to improve ventilation in the welding area. Do not resume welding if physical discomfort persists.

ADDITIONAL SAFETY INFORMATION

For additional information concerning welding safety, refer to the following standards and comply with them as applicable.

- ANSI Standard Z49.1 -- SAFETY IN WELDING AND CUTTING -- obtainable from the American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33135 Telephone (305) 443-9353
- ANSI Standard Z87.1 -- SAFE PRACTICE FOR OCCUPATION AND EDUCATIONAL EYE AND FACE PROTECTION -- obtainable from the American National Standards Institute, 1430 Broadway, New York, NY 10018

Assembly

IMPORTANT: Compare lengths of the two cables provided. The shorter cable is used for the ground clamp. The longer cable is used for the electrode holder.

Attach the electrode holder and ground clamp to welding cables according to the instructions packed with the holder and clamp.

Installation

1. Locate welder in a area where exposure to dirt and dust is minimal.
2. Allow ample space around welder for maintenance or repair should it become necessary.
3. Position welder so that air vents located on side and back panels are free from any obstructions.

WIRING CONNECTIONS FOR 3Z564A

1. All wiring, wiring systems, and electrical connections must comply with the National Electrical Code (NEC), all electrical and safety codes and the Occupational Safety and Health Act (OSHA). In particular refer to Article 630, "Electric Welders" of the NEC.

Models 3Z561C, 3Z563B, 3Z564A and 3Z744B

Installation (Continued)

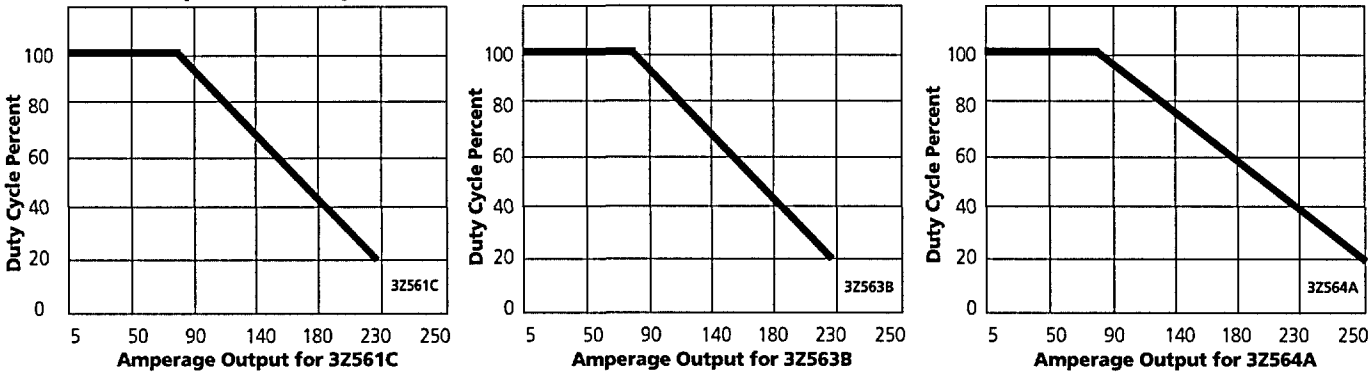


Figure 1 - Duty Cycle Charts

2. Wire Model 3Z564A as follows:
   a. This AC/DC arc welder must be connected to a single phase 60 Hz., power supply rated either a 230 volt, or 208 volt. Consult the local power and light company, if there is any question about the system used locally, or the power connection, to connect the single phase power service to the welder.
   b. The welder should be field wired with a minimum wire size of #8 AWG to the nearest power supply (not over 25 feet.) Connections should be made to leads in the field wiring box at rear of welder. Check inside wiring box for proper wiring instructions.
   c. The welder frame must be securely and adequately grounded. This can be accomplished by wiring with a grounded metal conduit, or by using a separate ground wire connected to the green grounding wire in the wiring box.
   d. The welder is factory wired for 230 volt, 60 Hz. single phase operation. It may be changed to 208 volt, 60 Hz. operation by changing the wire connections at the terminal block, in the welder. Instructions for this connection are adjacent to the terminal block inside the case.

ALTERNATE WIRING FOR 3Z564A and WIRING CONNECTIONS FOR 3Z561C and 3Z563B

A NEMA 6-50R, 2 pole 3-wire grounding receptacle rated for 250 volts and 50 AMPS is required. Installation should be by a qualified electrician and in accordance with all local codes. The grounding wire must be run to a suitable grounding medium such as the electrical conduit system, the water system or a regular driven ground rod. Check with the local inspection authority if there is any question as to an accepted grounding method. A power cord kit part #2808 needs to be installed on Model 3Z564A for it to work with this wiring configuration.

WIRING CONNECTIONS FOR 3Z744B

1. This arc welder is a single phase unit and must be connected to a 115V 60HZ 20A min. power supply. Consult the local power and light company if there is any question about the system used locally or the power connection to connect single phase power service to the welding machine.
2. A NEMA, 5-20R, 2-pole, 3-wire grounding receptacle on a supply circuit rated for 120 volts and 20 amps is required. The supply circuit breaker of fuse should be rated at 30A or less. Installation should be by a qualified electrician and in accordance and in accordance with all local codes. The grounding wire must be run to a suitable grounding medium such as the electrical conduit system, the water system or a regular driven ground rod. Check with the local inspection authority if there is any question as to an accepted grounding method.

Operation

⚠ CAUTION ***Never, under any circumstances, operate the welding machine with enclosure removed. In addition to the safety hazard, improper cooling my result in damage to the welding transformer and other components. Read all general safety information carefully before operating the welding machine. Be sure you are wearing protective clothing and proper eye protection.***

Dayton® Arc Welder

ENGLISH

Operation (Continued)

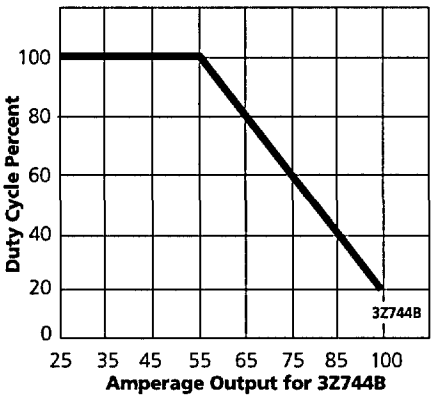


Figure 1 - Duty Cycle Charts (continued)

1. The rated Duty Cycle of a welder is the percentage of a ten (10) minutes period that a welder can safely operate at a given output current setting. Refer to the charts on page 5, Figure 1.

   EXAMPLE: If a welder is rated 20% duty cycle at 250 AMPS, this means the welder can be safely operated 2 minutes out of 10 when set at 250 AMPS. With the Dayton welder, when the welding current is decreased, the duty cycle will increase. The chart enables the operator to determine the safe output of the welding machine at various duty cycles.

2. If you are welding with AC position of machine, insert electrode plug into AC female jack marked "Electrode" and insert ground plug into female jack marked "Ground".

3. To weld DC straight polarity: insert electrode plug into negative (–) DC female jack, and insert ground clamp plug into positive (+) female jack.

4. To weld DC reverse polarity: insert electrode plug into positive (+) female jack and insert ground clamp plug into negative (–) female jack.

5. A slight twist while inserting each plug into the jack will insure a tight connection.

6. Adjust amperage control For 3Z564A ONLY as follows:

   a. Lift locking lever up to "Release" position.

   b. Set amperage to desired amp setting by moving pointer to desired amp output.

   c. Push locking lever down to "Lock" position.

7. FOR MODELS 3Z561C, 3Z563B and 3Z744B, adjust amperage control as follows:

   a. To lower current (amperage), squeeze amperage control lever handle, push in lightly and lower.

   b. To raise current (amperage), squeeze amperage control lever handle, pull out lightly and lift.

   c. When lever handle is released, it is automatically locked in position.

8. Flip the power switch to the ON position.

9. Be sure to have proper eye protection before striking arc.

10. Place an electrode of proper type and size into the electrode holder and start welding.

11. Stop welding and flip the power switch to the off position to adjust the current control if necessary.

12. After the welding job is completed, break the arc and flip the power switch to the OFF position.

⚠ CAUTION ***Never attempt to strike an arc with the locking lever in the "Release Position". This can cause the amp selector to jump, which could damage internal parts.***

13. If an extension cord, longer supply wires, or longer output cables are to be added, lengths and sizes should be within limits specified in the National Electrical Codes.

Maintenance

⚠ WARNING ***Always flip the power switch to the off position and unplug the welders power cord from the ac power source. If the welder is hard wired be sure the branch circuit main disconnect switch, or circuit fuses are removed before attempting to inspect, or work inside of the welding machine. Placing the power switch in the off position does not remove voltage from the power switch terminals inside the welding machine.***

TRANSFORMER

Occasionally blowing out the dust and dirt from around the transformer is recommended. This should be done periodically depending upon the location of the welder and the amount of dust and dirt in the atmosphere. A clean dry air stream should be used for this cleaning operation.

SHUNT LOCKING SYSTEM ADJUSTMENT FOR 3Z564A ONLY

Adjustment of this pressure is done by tightening the locking nut until the spring washers are partially compressed. Refer to Figure 2. This adjustment is made at the factory when the unit is built; however, it may be necessary to readjust the tension after extended use. If the amperage control

Models 3Z561C, 3Z563B, 3Z564A and 3Z744B

Maintenance (Continued)

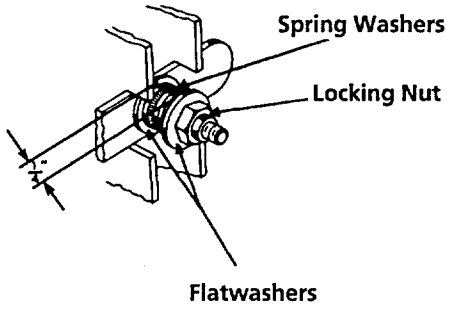


Figure 2 - For Model 3Z564A Shunt Locking System ONLY

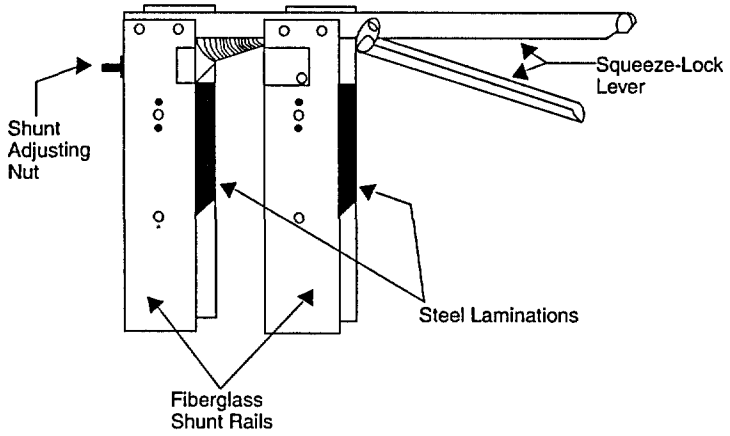


Figure 3

slips or moves when you weld, the tension should be readjusted.

Adjust the shunt lock system as follows. See Figure 2 for reference.

1. Unscrew the cover screws and remove cover from welder.
2. Lock and unlock the shunt a few times to familiarize yourself with the mechanism and pressure required.
3. Turn locking nut one-sixth (1/6) of a turn clockwise. (The six flats of the nut should be used to tell how far to rotate.)
4. Lock and unlock the shunt and note that the pressure has increased. If not, tighten the nut another one-sixth of a turn and check again.
5. Replace enclosure and screws.

⚠ CAUTION ***Do not overtighten locking nut. Spring washers should NOT be completely compressed. When shunt is locked there should be 1/4" space between the insides of the flatwashers for proper adjustment. Too much tension can cause damage to the clamping parts.***

SQUEEZE LOCK SHUNT ADJUSTMENT/REPLACEMENT INSTRUCTIONS for 3Z561C, 3Z563B and 3Z744B

ELECTRIC SHOCK CAN KILL! To reduce risk of electric shock, ALWAYS DISCONNECT THE WELDER FROM THE AC POWER SOURCE before performing any maintenance or service.

Adjustment Procedure:

1. Unplug welder from AC power source
2. Remove cover (left side, top, and right side piece) from welder.
3. Using a wrench, turn the shunt adjusting nut (see diagram) counter clockwise (to the left) 1/2 turn.
4. Reinstall cover, but fasten temporarily with only 2 to 4 screws.
5. Plug welder into AC power source, set shunt to an amperage setting where slippage was occurring, and lay a bead on some scrap metal.
6. If no slippage occurred, unplug welder from AC power source and install the remaining screws to permanently fasten the cover to the welder.

   If slippage did occur again, repeat steps #1 through #6 again.

NOTE: If you repeat this process a number of times and get to the point where 1/2" or less of threads are protruding from the end of the adjusting nut with slippage still occurring, discontinue the shunt adjusting procedure and **REPLACE THE SHUNT.**

Shunt Replacement Procedure:

1. Unplug welder from AC power source
2. Remove cover (left side, top, and right side piece) from welder.
3. GENTLY, tip the welder over on its back.
4. MARK all the wire leads connected to the back of the HIGH, LOW, GROUND AC welding cable receptacles. Then disconnect all the transformer leads.

   On welders with both AC and DC welding capabilities, remove the aluminum bracket from the rear of the NEGATIVE (–) DC receptacle.
5. Remove the four transformer mounting screws, then bend the front panel of the welder forward until it clears the squeeze-lock lever of the shunt.
6. Squeeze the squeeze-lock lever and slide the shunt out of the transformer.

Dayton

Dayton® Arc Welder

ENGLISH

Maintenance (Continued)

7. Apply a thin film of silicone lubricant to the 4 exposed edges of the steel laminations in the shunt (see diagram). BE CAREFUL not to get grease on the fiberglass shunt rails-just the steel laminations.
8. Squeeze the squeeze-lock lever and slide the new shunt into the transformer.
9. Bend the front panel of the welder back down, then install the four transformer mounting screws and tighten securely.
10. Reinstall the power switch with its two mounting screws and tighten securely.
11. Reinstall all the wire leads to the back side of the welding cable receptacles and tighten securely.

    On models with AC and DC welding capabilities, reinstall the aluminum bracket to the rear of the NEGATIVE (–) DC receptacle and tighten securely.
12. Return to the ADJUSTMENT PROCEDURE above and adjust your new shunt.

Limited Warranty

Dayton One-Year Limited Warranty. *Dayton® Arc Welders, Models covered in this manual, are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from jurisdiction to jurisdiction.*

Limitation of Liability. *To the extent allowable under applicable law, Dayton's liability for consequential and incidental damages is expressly disclaimed. Dayton's liability in all events is limited to and shall not exceed the purchase price paid.*

Warranty Disclaimer. *Dayton has made a diligent effort to provide product information and illustrate the products in this literature accurately; however, such information and illustrations are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions. Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in the "LIMITED WARRANTY" above is made or authorized by Dayton.*

Product Suitability. *Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Dayton attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, review the product applications, and all applicable national and local codes and regulations, and be sure that the product, installation, and use will comply with them.*

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some jurisdictions do not allow a limitation on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of this limited warranty, any implied warranties of implied merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

Prompt Disposition. *Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.*

Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 U.S.A.

Models 3Z561C, 3Z563B, 3Z564A and 3Z744B

Troubleshooting Chart

Symptom	Possible Cause(s)	Corrective Action
Welder hums but output too low or it does not weld	1. Input line voltage too low	1. 3Z561C, 3Z563B, and 3Z564A: Have an electrician check too see that line voltage is 220-230 volt, single phase, and that the wiring is delivering the rated power 3Z744B ONLY: Have an electrician make certain line voltage is 115-120, single phase, and that wiring is delivering rated current
	2. Poor connection outside welder	2. Disconnect power to the welder, then check cables and cable connections outside welder
	3. Poor connections inside welder	3. Disconnect power to the welder, then check, clean and tighten all wire connections inside the welder
	4. Wrong electrodes	4. Check to be sure the correct electrodes are being used
	5. Wrong polarity 3Z563B and 3Z564A ONLY	5. Check to be sure that welder and electrode polarity match
Welder causing shocks	Welder wired with a "hot" wire to the "ground" terminal	Disconnect the welder, then check "Ground" connection of welder receptacle. DO NOT USE WELDER UNTIL CAUSE OF SHOCK HAS BEEN DETERMINED AND CORRECTED. If this situation continues after the ground connection has been checked and verified, bring welder into nearest service center for repair
Trickle shocks	Moist Ground	Stand on dry board or other dry surface
Welder does not hum, when turned on	1. Welder not getting power	1. Check fuses and circuit breakers back to meter
	2. Faulty power cord	2. Replace power cord
	3. Faulty Power switch	3. Replace power switch
Amperage control slips or moves when starting to weld	1. Shunt lock	1. Adjust tension (see Maintenance under SHUNT LOCKING SYSTEM ADJUSTMENT)
	2. Shorted diode Models 3Z563B and 3Z564A ONLY	2. Replace diode

For Replacement Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide the following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

Address parts correspondence to:
Grainger Parts Operations
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

ENGLISH

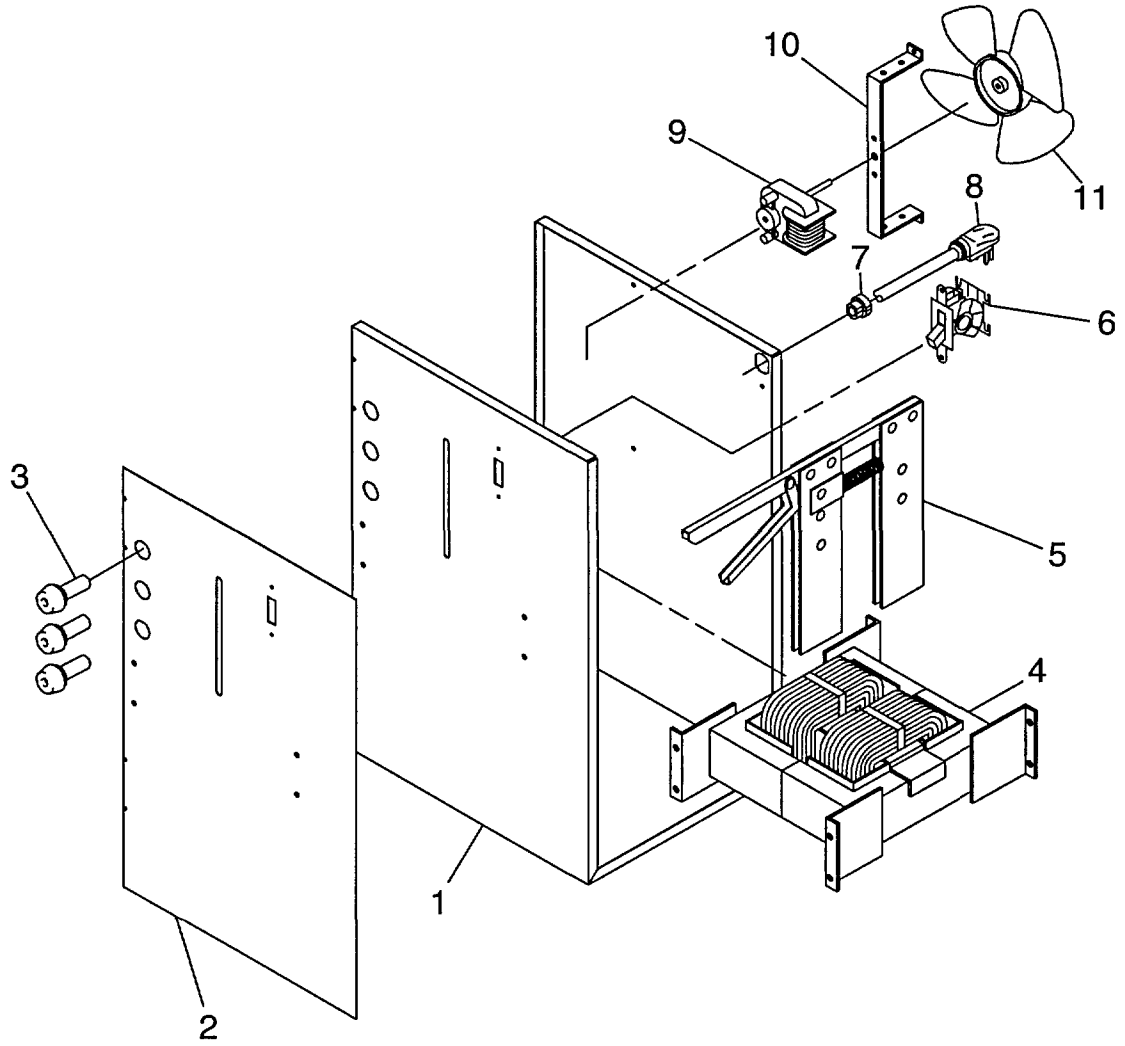


Figure 4 - Replacement Parts Illustration for Model 3Z561C

Replacement Parts List for Model 3Z561C

Reference Number	Description	Part Number For Model 3Z561C	Quantity
1	Base	410-182-730	1
2	Faceplate	711-131-310	1
3	Receptacle	312-028-666	1
4	Transformer	860-431-888	1
5	Shunt	860-402-666	1
6	Switch	246-371-666	1
7	Strain Relief	541-019-000	1
8	Power Cord	248-301-666	1
9	Fan Motor	216-086-666	1
10	Fan Mounting Bracket	411-072-000	1
11	Fan Blade	316-007-666	1
§	Cover	410-164-110	1
§	Ground Cable (10 Ft.)	238-434-000	1
§	Electrode Cable (12 Ft.)	238-435-000	1
§	Ground Clamp Assembly	239-010-102	1
§	Electrode Holder Assembly	239-011-905	1
§	Helmet with Strap	4213	1
§	Helmet head band Only	332-175-000	1
§	Male Cable Plug (Set of 2)	4031	1
†	Wheel Kit	2Z966	1

(§) Not shown.
(†) Optional.

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24 hours a day - 365 days a year

Please provide the following information:
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-Serial number (if any)
-Part description and number as shown in parts list

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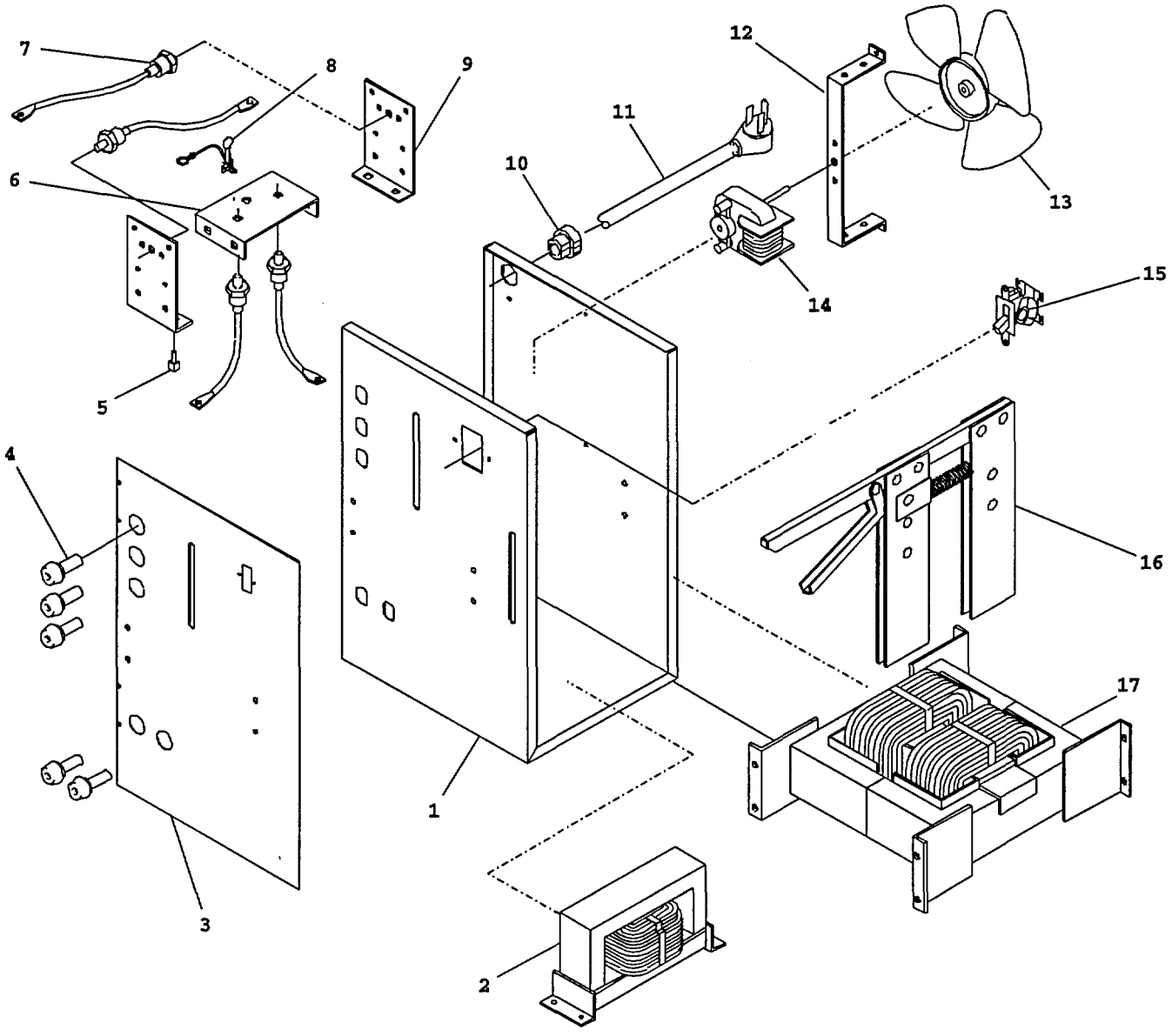

Figure 5 – Replacement Parts Illustration for Model 3Z563B

Replacement Parts List For Model 3Z563B

Reference Number	Description	Part Number For Model 3Z563B	Quantity
1	Base Wrapper	410-182-730	1
2	Reactor Assembly	860-986-888	1
3	Faceplate	711-133-310	1
4	Receptacle Assembly	312-028-100	1
5	Insulator	512-072-000	1
6	Heat Sink,Channel	412-433-000	1
7	Diode	860-476-666	4
8	Transient Voltage Protector	860-189-666	1
9	Heat Sink Angle	412-436-000	1
10	Strain Relief	541-019-000	1
11	Power Cord	248-301-000	1
12	Fan Mounting Bracket	411-072-666	1
13	Fan Blade	316-007-666	1
14	Fan Motor	216-086-666	1
15	Switch	246-371-000	1
16	Shunt Assembly	860-402-666	1
17	Transformer Assembly	860-431-888	1
§	Case Wrapper (not shown)	410-164-110	1
§	Ground Cable	238-434-000	1
§	Electrode Cable	238-435-000	1
§	Helmet	4213	1
§	Ground Clamp	239-010-102	1
§	Electrode Holder	239-011-905	1
§	Cable Jacks (set of 2)	4031	1
§	Helmet head band only	332-175-000	1
†	Wheel Kit; including handle, axle and mounting foot	2Z966	1

(§) Not shown.

† Optional.

For Replacement Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide the following information:
-Model number
-Serial number (if any)
-Part description and number as shown in parts list

Address parts correspondence to:
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P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

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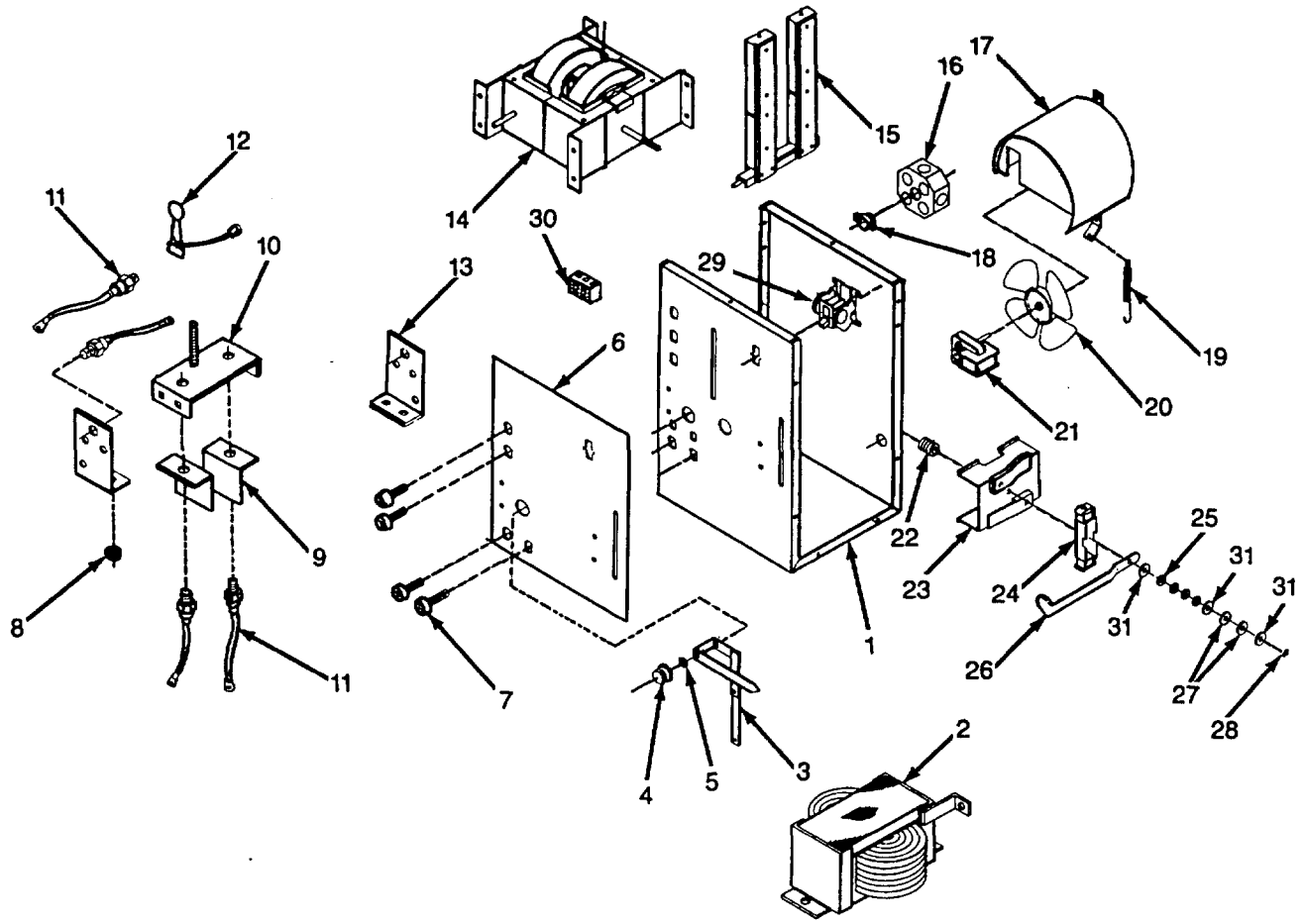

Figure 6 - Replacement Parts Illustration for Model 3Z564A

Replacement Parts List For Model 3Z564A

Reference Number	Description	Part Number For Model 3Z564A	Quantity
1	Base Wrapper	410-197-960	1
2	Reactor Assembly	860-985-888	1
3	Dial Linkage	860-124-200	1
4	Linkage Hub	541-048-000	1
5	Push Nut	068-011-000	1
6	Dial Plate	711-175-030	1
7	Jack Receptacle	312-028-666	4
8	Insulator Spacer	512-010-000	8
9	Heat Sink Fin	412-107-000	2
10	Heat Sink, Channel	412-433-000	1
11	Diode, Silicon	214-004-666	4
12	Transient, Voltage Protector	860-189-666	1
13	Heat Sink, Angle	412-434-000	2
14	Transformer Assembly	860-263-888	1
15	Shunt Assembly	860-121-000	1
16	Conduit Box	239-073-000	1
17	Fan Baffle and Bracket	860-117-000	1
18	Box Connector	239-074-000	1
19	Spring	330-016-000	2
20	Fan Blade	316-007-666	1
21	Fan Motor	216-086-666	1
22	Counter Spring	310-060-000	1
23	Shunt Clamp	860-118-000	1
24	Clamp Roller Assembly	860-119-000	1
25	Spring Washer	330-017-000	4
26	Clamp Handle	412-231-010	1
27	Thrust Washer	311-085-000	2
28	Locking Hex Nut	069-010-000	1
29	Switch	246-364-000	1
30	Terminal Block	239-057-000	1
31	Flatwasher, 3/8"	*	3
§	Case Wrapper	410-164-110	1
§	Set of Two male cable plugs	4031	1
§	Ground Clamp Assembly	239-010-102	1
§	Ground Cable, 10 Ft. with clamp	4007	1
§	Electrode Holder Assembly	239-011-905	1
§	Electrode Cable, 12 Ft, with holder	4017	1
§	† Arc Stabilizer	2801	1
§	† Tig Torch	2804	1
§	Welding Helmet with Strap	4213	1
§	Helmet head band only	332-175-000	1
§	† Wheel Kit with handel axle & foot	2Z966	1
§	† Power Cord kit	2808	1

(§) Not shown.
(†) Optional.
(*) Standard hardware item.

Dayton

For Replacement Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide the following information:
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-Serial number (if any)
-Part description and number as shown in parts list

Address parts correspondence to:
Grainger Parts Operations
P.O. Box 3074
1657 Shermer Road
Northbrook, IL 60065-3074 U.S.A.

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IMPORTANT: Servicing should be performed by qualified service personnel.

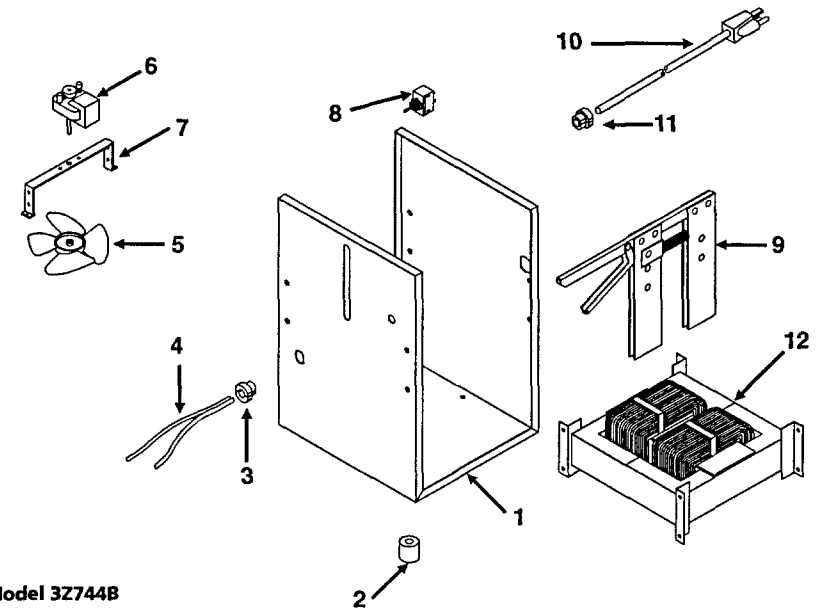

Figure 7 – Replacement Parts Illustration for Model 3Z744B

Replacement Parts List for Model 3Z744B

Reference Number	Description	Part Number For Model 3Z744B	Quantity
1	Welder Base	410-626-060	1
2	Foot (4)	441-022-000	1
3	Torch Strain Relief	541-008-000	1
4	Cable Assembly Only	238-202-000	1
5	Fan Blade	316-009-666	1
6	Fan Motor	216-041-010	1
7	Fan Mounting Bracket	412-375-000	1
8	Switch	246-210-000	1
9	Shunt Assembly	860-345-666	1
10	Power Cord	248-134-000	1
11	Power Cord Strain Relief	541-052-000	1
12	Transformer Assembly	880-013-888	1
§	Ground Clamp Only	239-010-102	1
§	Electrode Holder Only	239-011-905	1
§	Welder Cover	410-208-030	1
§	Handle	412-116-100	1
§	Helmet	4213	1
§	Helmet Strap Only	332-175-000	1
§	† • Wheels (2)	413-044-666	1
§	† • Hub Caps (2)	068-013-666	1
§	† • Axle	413-019-100	1

(§) Not Shown.
(†) Optional
(•) Included in optional Wheel Kit (Part No. 132-012-000).

Manufactured for Dayton Electric Mfg. Co.
Niles, Illinois 60714 USA

811-494-000

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